



Social participation and setbacks in the protection of restinga vegetation in Brazil in the period between 1965 and 2021

Participação social e retrocessos na proteção da vegetação de restinga no Brasil no período entre 1965 e 2021

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ABSTRACT: Restingas are located all along the Brazilian coast, playing a crucial role in protecting coastal cities from extreme weather events. Threats to this ecosystem have intensified with the dismantling of environmental legislation and regulatory bodies, such as the National Environmental Council (CONAMA). This paper investigates the implications of the change in the composition of CONAMA and the effects on the legal protection of the restinga vegetation. The data were obtained through research of documental sources and legislation, collected between March 2020 and May 2021. The advances and setbacks in the legal protection of the restinga vegetation were identified from 1965 to 2021, with the Federal Law 4,771/1965 as the historical framework. The data collected was analyzed based on fifteen key principles of Ecosystem-Based Management. Social participation in CONAMA was compromised with the edition of Federal Decree 9,806/2019, which reduced the number of full councilors from 108 to 23, being restricted to ministries, confederations, a representative of the Federal Public Prosecutor, and a representative of society. After the restructuring of the advisors, the CONAMA Resolution 500/2020 was approved, revoking the CONAMA Resolution 303/2002, protecting the restinga within 300 meters from the high tide line. The subversion of the democratic principle of popular participation generated a loss of legal protection in the restinga vegetation, moving Brazil away from the commitments established in international conventions, besides bringing risks to the conservation of fragile, dynamic, and unstable environments.

Keywords: ecosystem-based management; National Council for the Environment; coastal zone.

RESUMO:

As restingas estão localizadas ao longo de todo o litoral brasileiro, tendo um papel crucial na proteção das cidades costeiras aos eventos climáticos extremos. As ameaças a este ecossistema se intensificaram com o desmonte da legislação ambiental e dos órgãos colegiados de regulamentação, a exemplo do Conselho Nacional de Meio Ambiente (CONAMA). Este artigo investiga as implicações da alteração na composição do CONAMA e os reflexos na proteção legal da vegetação de restinga. Os dados foram obtidos por meio de pesquisa de fontes documentais e legislação, coletados entre março de 2020 a maio de 2021. Os avanços e retrocessos na proteção legal da vegetação de restinga foram identificadas no período de 1965 a 2021, tendo como marco histórico a Lei nº 4.771/1965. Os dados levantados foram analisados a partir de quinze princípios-chave da Gestão de Base Ecológica. A participação social no CONAMA foi comprometida com a edição do Decreto nº 9.806/2019, que reduziu o número de conselheiros titulares de 108 para 23, ficando restrito aos ministérios, confederações, um representante do Ministério Público e um representante da sociedade. Após a reestruturação dos conselheiros foi aprovada a Resolução CONAMA nº 500/2020, que revogou a Resolução CONAMA nº 303/2002, a qual protegia a restinga na faixa de 300 metros medidos a partir da linha de preamar máxima. A subversão do princípio democrático da participação popular gerou perda de proteção legal na vegetação de restinga, afastando o Brasil dos compromissos estabelecidos em convenções internacionais, além de trazer riscos à conservação de ambientes frágeis, dinâmicos e instáveis.

Palavras-chave: gestão de base ecológica; Conselho Nacional do Meio Ambiente; zona costeira.

1. Introduction

The coastal environments of Brazil are highly impacted and exploited, largely due to real estate speculation, which exerts strong pressure on the vegetation and associated fauna (Santos, 2001; Amorim, 2017). Despite the farmsteads, mills, fishing ranches, and residences of traditional populations provided for in the Federal Decree 6,040 of 2007 (Brasil, 2007), the national urbanization process has been concentrated in coastal regions, destroying extensive environments in this strip (Albertoni & Esteves, 1999). As a result, the environments in the Brazilian coastal plains, such as dunes, islands, reefs, rocky coasts, bays, estuaries, beaches, restingas, lagoons, and mangroves, are among the most degraded and threatened in the country. In the coastal zone, 70% of the national Gross Domestic Product (GDP) is generated, with a high concentration of urban areas, industrial activities, ports, energy, and

tourism complexes (Ribeiro & Coura, 2003; Silva *et al.*, 2012).

All these activities exert intense pressure on coastal ecosystems. The conversion of natural areas for crops and pastures for extensive cattle breeding, reforestation with *Pinus* spp. and *Eucalyptus* spp., mining, inappropriate use of recreational areas, and urban expansion, with the construction of tourism and real estate developments are some of the most impactful activities for the restinga vegetation (Martins *et al.*, 2008; Bourscheid & Reis, 2010; Esteves, 2011). The effects of these activities lead to loss of biodiversity, accidental invasion or introduction of exotic species, triggering of erosive processes, soil and groundwater contamination, landscape alteration, modification of the hydrodynamic balance, among others (Santos & Medeiros, 2003; Cordazzo *et al.*, 2006; Queiroz *et al.*, 2012; Moura *et al.*, 2016).

The pressure for the occupation of the restinga has also been occurring through changes in its legal

protection in face of the recent disruption in environmental governance arrangements (Adams *et al.*, 2020; ASCEMA, 2020). First, one of the measures with the greatest impact on Brazilian biodiversity conservation, with wide global repercussions, was the Federal Decree 9,759/2019 (Adams *et al.*, 2020), which extinguishes collegiate bodies of the federal public administration. As a result, participatory processes were seriously compromised, thus preventing social control and defense of important societal issues. This Decree had no direct repercussion on CONAMA, since it was created through the National Environmental Policy (Federal Law 6,938/1981) (Brasil, 1981). Nevertheless, the composition of CONAMA was reduced from 108 to 23 representatives by the Federal Decree 9,806/2019 (Brasil, 2019). In addition, to the numerical reduction, the sectoral plurality was significantly altered, compromising the representation of environmentalist entities, indigenous peoples' representatives, social movements, and scientific entities. Representation in the new CONAMA now has one seat for each geographic region, two for municipal governments, four for environmental entities, and two for business entities.

After its restructuring in 2020, CONAMA revoked Resolutions 284/2001 (provides for the licensing of irrigation enterprises) (CONAMA, 2001), 302/2002 (provides for the parameters, definitions, and limits of Permanent Preservation Areas – PPAs – of artificial reservoirs and the use regime of the surroundings) (CONAMA, 2002) and 303/2002 (provides for parameters, definitions, and limits of PPAs) (CONAMA, 2002). In the case of Resolution 303/2002 (CONAMA, 2002), its revocation was motivated by the understanding that the dune-fixing restinga vegetation was already protected through

Law 12,651/2012 (Brasil, 2012) which provides for the protection of native vegetation. However, on August 24, 2020, the Federal Regional Court of the 3rd Region (TRF 3ª Região) determined that the Environmental Company of the State of São Paulo (CETESB) must apply CONAMA Resolution 303/2002 (CONAMA, 2002) to prevent the occurrence of irreparable harm to the collectivity and the environment, in all processes, and consider as PPAs the strip of 300 meters from the maximum high tide mark in its administrative procedures for environmental licensing and authorization, without prejudice to the application of other normative acts that are more protective of the environment (MPSP, 2020). CONAMA Resolution 303/2002 (Brasil, 2002b), in its Art. 3, item IX-a, defines as PPA, in the restingas, a minimum strip of three hundred meters, measured from the maximum high tide line (LPM - 1831), whose demarcation dates back to 1959, and was processed following the procedures established in Federal Legislative Decree 9,760/1946 (LPM - 1831) (Brasil, 1946).

The setbacks in participatory processes, as well as in the legal protection of restinga vegetation, demonstrate that the current federal government (2018 -2021) and CONAMA are formed by a majority that is not committed to its function of looking after the national natural heritage as explicitly stated in the Brazilian Constitution and the National Environmental Policy (Brasil, 1981; Brasil, 1988; ASCEMA, 2020; Direto da Ciência, 2020). These changes in the legal framework signal that the false dichotomy 'production-conservation of biodiversity' has not yet been overcome for the whole society and is being used as an argument for the dismantling of environmental policy (Adams, *et al.*, 2020). In this scenario, we risk compromising

the provision of ecosystem services guaranteed by the restinga (Veiga Lima *et al.*, 2016; Paiva & Almeida Jr., 2020).

In this paper, we aimed to answer the following question: what are the implications of the change in the composition of CONAMA and the consequences on the legal protection of the restinga vegetation? To answer this question, we identify the setbacks in social participation in the light of the theoretical perspective of Ecosystem-Based Management (Long *et al.*, 2015), through the analysis of the composition of CONAMA between 2001 and 2019, and its reflections on the legal protection of the restinga vegetation in the period from 1965 to 2021, assessing the loss of protection and warning about the consequences.

2. Material and methods

2.1. Study area description

With 9,200 kilometers, including the coastal inlets, Brazil has the longest inter and subtropical coastline on the planet, with a coastal strip that displays a vast panel of tropicality marked by the exclusive occurrence of sandy beaches (Ab'Saber, 2001). In this coastal strip, the contact between the sea and the continent takes place, where the exposed land varies a lot in terms of the nature of the rocks, the height of the relief, and compartments of the topography. In contrast, the dynamics of the coastal waters continue in their constant work of abrasion and sedimentation, even though there are differentiations, from the poles to the tropics and at the mouths of large rivers (Ab'Saber, 2001).

In the coastal region there occur plains formed by Tertiary and Quaternary sediments, constituted by marine, continental or transitional deposits, and may be intercalated by cliffs and rocky coasts of Precambrian age, where sedimentary and volcanic sequences accumulated in Paleozoic, Mesozoic and Cenozoic basins settle (Villwock, 1994). These features are commonly called coastal plains, for which the generic term "restinga" is used. In the technical literature the concept of restinga may prove variable due to the geological, geomorphological, geographic, botanical or ecological approach; however, for the purposes of the operation of the protection standards, the concept incorporated in the national general rule, the Native Vegetation Protection Law (Federal Law 12,651/2012) (Brasil, 2012) will be used.

Although there are variations of interpretation in the concept of restinga, since this is an analysis associated with the legal frameworks of protection, we adopt the concept contained in Art. 3, item XVI, of the Federal Law 12,651/2012 (Brasil, 2012), which defines restinga as a sandy deposit parallel to the coastline, generally elongated in shape, produced by sedimentation processes, where different communities that receive marine influence are found, with mosaic vegetation cover, found on beaches, sandy ridges, dunes, and depressions, presenting herbaceous, shrub, and tree strata, the latter more internalized.

Restingas are located along the entire Brazilian coast, from latitude 4° N to 34° S, as shown in Figure 1, which indicates the approximate distribution of restingas along the Brazilian coast based on the biomes map (IBGE 2019). Their largest extensions are on the coast of Rio Grande do Sul and in the deltas of the large rivers of the Southeast and Northeast regions (Waechter, 1985).

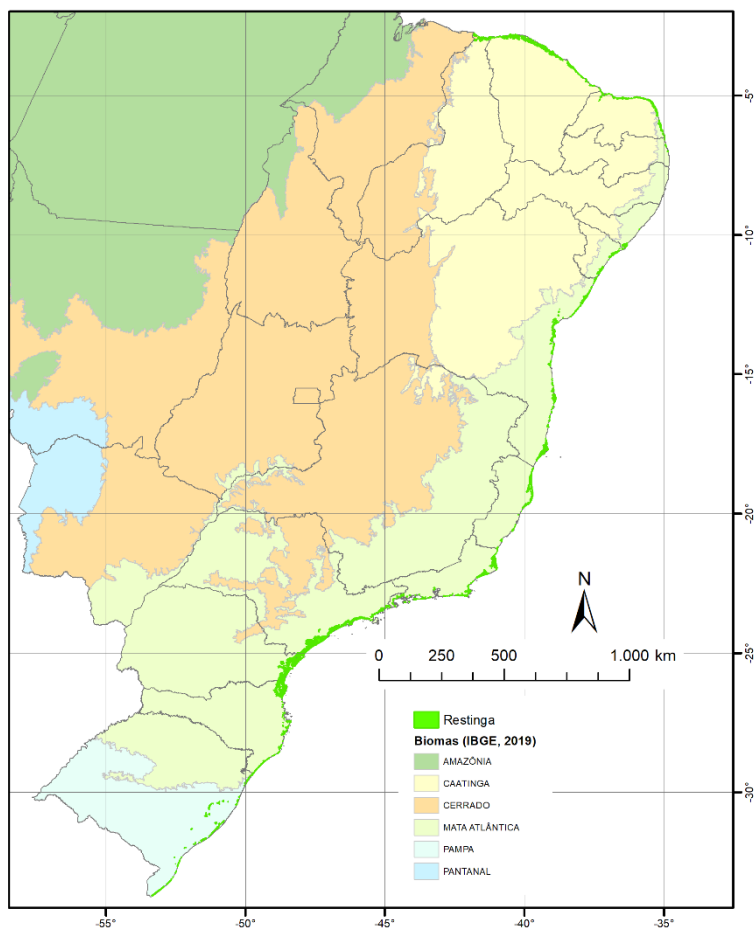


FIGURE 1 – Location of restinga vegetation in Brazil.

SOURCE: IBGE, 2019.

Most of the Brazilian coastal vegetation is associated with the Atlantic Forest biome, leaving a portion associated with the Amazon Equatorial coast with approximately 1,850 kilometers long, covering the states of Amapá, Pará, and Maranhão. The main factors that act on the coastal flora are the poverty of nutrients and water in the sandy soils, the sea salinity, the mobility of the dunes and also, as atmospheric factors, the excess heat and light and the constancy of the wind (Waechter, 1985). In general, the coastal soils have low fertility, reduced water retention capacity, poor drainage or high salt content (Waechter, 1985). These characteristics make the restingas an extremely adverse environment, allowing only the fixation of plant species highly adapted to these conditions.

The variability of the restingas is associated not only with the modification of climatic and edaphic conditions, but also with temporal factors of successional character (Waechter, 1985; Cordazzo & Seeliger, 1995). The complexity of the communities increases as they are more distant from the ocean and the faunal composition is determined by local environmental factors, such as topography, proximity to the sea, soil conditions, depth of the water table, as well as by the different biological interrelations of the components of the different communities (Araújo & Lacerda, 1987).

2.2. *Experimental design*

The data were collected from March 2020 to May 2021 and obtained through documentary research and the incident legislation that regulates

the restinga vegetation and CONAMA. Updates must always be made in the selection for a current legislation analysis due to the constant changes in the legal diplomas. The electronic portals consulted were: Conselho Nacional do Meio Ambiente (www.mma.gov.br/conama) and Planalto (www.planalto.gov.br).

The time frame for the analysis starts in 1965, when the New Forest Code was published (Federal Law 4,771, of September 15, 1965) (Brasil, 1965) and continues until October 2020, with the suspension of CONAMA Resolution 500/2020 (CONAMA, 2020) by the Supreme Court (STF).

In this period, we identified the legal milestones that directly or indirectly affect the protection of the restinga vegetation. The referred legal diplomas were compared with the events after the changes in 2019 in CONAMA, which reflected directly on the protection of the restinga vegetation (Table 1). In addition to the indicated legal diplomas, the following documents were analyzed:

a) People's Action requesting the repeal of CONAMA Resolution 500/2020 (September 2020) (Veja, 2020, Jusbrasil, 2020) and;

b) Injunction granted by the STF suspending the revocation of CONAMA Resolutions 284/2001, 302/2002, 303/2002 (October 28, 2020) (Jusbrasil, 2021).

This procedure made it possible to relate the changes in CONAMA to reducing the participation of entities committed to protecting the restinga vegetation.

TABLE 1 – Legal documents consulted during the research period.

Legal documents	Amendment
Federal Law 4,771/1965	New Forest Code
Federal Law 6,938/1981	Establishes the National Environmental Policy.
Constitution of the Federative Republic of Brazil/1988	
Federal Decree 99,274/1990	Regulates Federal Laws 6,902/1981 and 6,938/1981.
Federal Decree 750/1993	Provides on the cutting, exploration, and suppression of primary vegetation or vegetation in advanced and medium stages of regeneration of the Atlantic Forest.
CONAMA Resolution 7/1996	Approves the basic parameters for analysis of the restinga vegetation in the State of São Paulo.
CONAMA Resolution 261/1999	Approves basic parameters for analysis of successive stages of restinga vegetation for the State of Santa Catarina.
Federal Decree 3,942/2001	Gives new wording to Federal Decree 99,274/1990.
CONAMA Resolution 303/2002	Provides on parameters, definitions and limits of Permanent Preservation Areas.
CONAMA Resolution 341/2003	Provides criteria for the characterization of sustainable tourism activities or enterprises as of social interest for the occupation of dunes that are originally devoid of vegetation in the Coastal Zone.
CONAMA Resolution 369/2006	Provides on the exceptional cases of public utility social interest or low environmental impact which allow the intervention or suppression of vegetation in Permanent Preservation Areas - PPA.
Federal Law 11,428/2006	Provides for the use and protection of the native vegetation of the Atlantic Forest Biome and makes other provisions.
CONAMA Resolution 417/2009	Provides basic parameters for defining primary vegetation and secondary successional stages of restinga vegetation in the Atlantic Forest.
Federal Law 12,651/2012	Provides for the protection of native vegetation.
Federal Decree 9,806/2019	Provides on the composition and functioning of CONAMA.
CONAMA Plenary approving Resolution 500/2020	Technical Note about the 135th CONAMA Plenary Session 09/28/2020.
CONAMA Resolution 500/2020	Declares the revocation of Resolutions 284/2001, 302/2002, 303/2002.

SOURCE: Elaborated by the authors.

2.3. Data analysis

The data was analyzed from the principles of Ecosystem-Based Management (EBM), which can be defined as:

(...) an interdisciplinary approach that balances ecological, social, and governance principles at appropriate temporal and spatial scales in a distinct geographic area to achieve sustainable resource use. Scientific knowledge and effective monitoring are used to recognize the connections, integrity, and biodiversity within an ecosystem, along with its dynamic nature and associated uncertainties. GBE recognizes coupled social-ecological systems with stakeholders involved in an integrated and adaptive management process where decisions reflect the societal choice (Long *et al.*, 2015, p. 59).

In light of the extensive literature on GBE principles, Long *et al.* (2015) reviewed the top thirteen articles on GBE and concluded that it is an evolving concept, and fifteen key principles can be highlighted: Consider Ecosystem Connections; Appropriate Spatial and Temporal Scales; Adaptive Management; Use of Scientific Knowledge; Stakeholder Engagement; Integrated Management; Sustainability; Explain the Dynamic Nature of Ecosystems; Ecological Integrity and Biodiversity; Recognize Coupled Socioecological Systems; Decisions Reflect Society Choices; Distinct Boundaries; Interdisciplinarity; Appropriate Monitoring and; Recognize Uncertainty.

The changes in the protection of restinga vegetation and the restructuring of CONAMA, which paved the way for such changes, were analyzed from each of the aforementioned key principles for GBE.

3. Results

3.1. The legal protection of the restinga vegetation

The importance and protection of the restingas were first recognized in 1965 by the New Forest Code (Federal Law 4,771) that established the restinga vegetation fixing dunes or stabilizing mangrove as PPA (Brasil, 1965). The Federal Constitution of 1988 (Brasil, 1988) in its Art. 225, paragraph 4, established the Atlantic Forest and the Coastal Zone, among others, as a national heritage, determining that its use will be in the form of law, within conditions that ensure the preservation of the environment, including the use of natural resources.

Federal Decree 750, of 1993, in its article 3, inserted the restingas in the Atlantic Forest domain, with the delimitation established by the Vegetation Map of Brazil (IBGE, 1988). After the publication of Federal Decree 750/1993 (Brasil, 1993), only two states located in the coastal zone regulated the procedures for defining primary vegetation and evaluating the secondary successional stages of the restinga vegetation, recognizing its specificities: São Paulo (CONAMA, 1996) and Santa Catarina (CONAMA, 1999). It is necessary to emphasize here that the edition of these resolutions is essential to guarantee the effective operation of the protection norm, since this varies according to the successional stage of the vegetation.

In 2002, CONAMA, through Resolution 303 (CONAMA, 2003), regulated the New 1965 Forest Code (Brasil, 1965) as to the parameters, definitions and limits of PPAs, conceptualizing "dune" (Art.

2, X) and establishing that it constitutes an PPA (Art. 3, XI). Resolution 341/2003 (CONAMA, 2003) defined criteria for the characterization of sustainable tourism activities or enterprises as of social interest for the occupation of dunes originally

devoid of vegetation in the Coastal Zone, and Resolution 369/2006 (CONAMA, 2006) defined the exceptional cases of public utility, social interest, or low environmental impact that allow intervention or suppression of vegetation in PPAs (Figure 2).

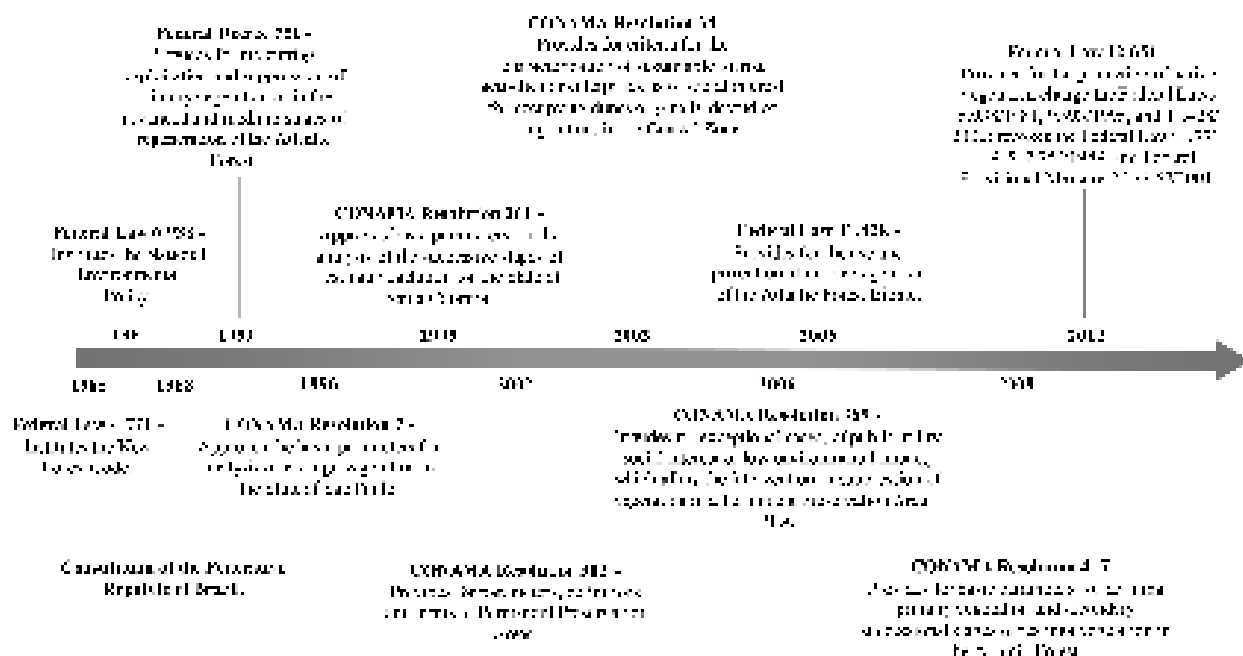


FIGURE 2 - History of the legal protection of restinga vegetation in Brazil.

SOURCE: elaborated by the authors.

Later, with the enactment of Federal Law 11,428 of 2006 (Atlantic Forest Law) (Brasil, 2006), the restinga vegetation became part of the Atlantic Forest Biome, as delimited on the Map of the Application Area of Federal Law 11,428 of 2006 by the Brazilian Institute of Geography and Statistics (IBGE), published in 2008 (Brasil, 2008).

The Atlantic Forest Law, in its 4th article, entrusted CONAMA with the task of defining primary vegetation and secondary vegetation in the advanced, intermediate, and initial stages of regeneration. However, even after the Atlantic Forest Law was established, there was no progress on the regulation, by CONAMA, of the parameters for defining restinga vegetation and its distinct successional stages for the other coastal states. The lack of initiative from the states led CONAMA to issue Resolution 417/2009 (CONAMA, 2009), establishing the basic parameters for defining primary vegetation and secondary successional stages of the restinga vegetation for all the other states of the Atlantic Forest, maintaining the validity of Resolutions 07 (CONAMA, 1996) and 261 (CONAMA, 1999), relating to the states of São Paulo and Santa Catarina, respectively.

In 2012, the Native Vegetation Protection Law (Federal Law 12,651/2012) was passed (Brasil, 2012) which repealed "The New Forest Code of 1965". In its Article 3 several definitions are brought, among them PPA, public utility, mangrove, salt marsh or tropical hypersaline marshes, apicum and restinga.

Article 4 of Federal Law 12,651/2012 (Brasil, 2012) considers as PPA, in rural or urban areas,

among other typologies, the restingas, as dune fixers or mangrove stabilizers. The law also determines that the intervention or suppression of native vegetation in PPAs will only occur in cases of public utility, social interest, or low environmental impact provided for in the law (Art. 8). Authorization for suppression of native vegetation that protects springs, dunes, and sandbanks was made conditional on cases of public utility.

Federal Law 12,651/2012 (Brasil, 2012) did not incorporate the protection of the minimum strip of three hundred meters of restinga vegetation, measured from the maximum high tide line, as well as the dunes, which are provided for under the PPA regime in Article 3, items IX-a and XI of CONAMA Resolution 303/2002 (CONAMA, 2002b).

The Atlantic Forest Law determines that the remnants of native vegetation in the primary stage and in the initial, secondary initial, medium and advanced stages of regeneration will have their use and conservation regulated by this law. In other words, the Atlantic Forest Law does not apply to converted areas, where remnants of native vegetation are no longer characterized, as textually explained in Article 1, § 1 of Federal Decree 6,660/2008:

Only the remnants of primary native vegetation and secondary native vegetation in the initial, medium and advanced stages of regeneration in the area covered by the map defined in the caput will have their use and conservation regulated by this Decree, not interfering in areas already occupied by agriculture, cities, pastures and planted forests or other areas devoid of native vegetation (Brasil, 2008).

In its article 8, the Atlantic Forest Law establishes that the cutting, suppression and exploitation of the Biome's vegetation will be differentiated according to whether it is primary or secondary vegetation, in the latter taking into account the regeneration stage (Brasil, 2006). Furthermore, in its Art. 11, it is established that the cutting and suppression of primary vegetation or in advanced and medium stages of regeneration are prohibited when the vegetation, among other attributes, has the function of protecting springs or preventing and controlling erosion.

It is important to emphasize that the Atlantic Forest Law determines that the suppression of primary and secondary vegetation in advanced stages of regeneration can only be authorized in cases of public utility. However, the secondary vegetation in the medium stage of regeneration may be suppressed in cases of public utility and social interest (Art. 14). Art. 20 states that the cutting and suppression of primary vegetation of the Atlantic Forest Biome will only be authorized on an exceptional basis, when necessary for public utility works, projects or activities, scientific research, and preservationist practices, requiring a Prior Environmental Impact Study/Environmental Impact Report (EIA/RIMA).

As already mentioned, when the Atlantic Forest Law was issued, only the states of São Paulo and Santa Catarina had specific CONAMA resolutions on basic parameters for defining primary vegetation and secondary successional stages of restinga vegetation. This gap was filled with the issue of Resolution 417/2009 (CONAMA, 2009),

which determines in article 2 that the herbaceous and subarbutive vegetation of restinga, which occurs on beaches, frontal and internal dunes (mobile, semi-fixed, and fixed), lagoons and their margins, plains and sandy terraces, swamps and depressions, by representing successional stages of vegetation in these areas, always remains as pioneer vegetation of primary succession, not existing secondary successional stages.

A similar determination was presented in Resolution 7/1996 (São Paulo). However, this characterization was limited to pioneer vegetation of primary succession only to the vegetation of beaches, dunes, and the vegetation associated with depressions. Resolution 261/1999 (Santa Catarina) (CONAMA, 1999), in turn, brings an identical device to Resolution 417/2009 (CONAMA, 2009), always considering the herbaceous and subarbutive restinga vegetation as primary vegetation, which ensures greater effectiveness to the protection of restinga vegetation conferred by the Atlantic Forest Law. However, it is necessary to point out that in the restingas, we commonly find herbaceous or subshrub vegetation covering sandy plains and terraces, making the protection conferred by Resolution 7/1996 more fragile when compared to the terms of 261 and 417.

3.2. Setbacks in the legal protection of the restinga vegetation

The setback in the legal protection of restinga vegetation began in 2012 when the New Forest

Code (Federal Law 4,771/65) (Brasil, 1965) was repealed and the Native Vegetation Protection Law (Federal Law 12,651/2012) (Brasil, 2012) came into effect. As previously mentioned, this law did not incorporate the protection of the minimum strip of three hundred meters of restinga vegetation and dunes. Both remained protected by Resolution 303/2002 (CONAMA, 2002b). CONAMA was created by Federal Law 6,938/1981 (Brasil, 1981), which instituted the National Environmental Policy (PNMA), and became the deliberative and consulting collegiate organ of the National Environmental System (SISNAMA). This law was regulated by Federal Decree 99,274/1990 (Brasil, 1990), with changes made by Federal Decree 3,942/2001 (Brasil, 2001), regulating consultative and deliberative purposes, as well as the council's competencies.

The purpose of CONAMA is to advise, study, and propose guidelines for government policies for the environment and natural resources, and to deliberate, within its competence, on norms and standards compatible with an ecologically balanced environment that is essential to a healthy quality of life (Federal Law 6,938/81) (Brasil, 1981). It is formed by: the Plenary, Technical Chambers (11), the Committee for Integration of Environmental Policies, Working Groups and Advisory Groups (IPEA, 2011). The Minister of the Environment chairs it and its executive secretariat is exercised by the Executive Secretary of the MMA, with the

assistance of a department linked to the MMA that provides technical and administrative support. According to IPEA (2011), in 2010, the collegiate had a total of 108 councilors from five sectors, unequally represented as to the number of councilors: federal government (39 councilors); state governments (27 councilors); municipal governments (8 councilors); business entities (8 councilors); workers' and civil society entities (22 councilors); non-voting councilors (three councilors); and one honorary member. Each full member had two alternate members.

The Plenary of CONAMA meets, ordinarily, every three months, in the Federal District and, extraordinarily, whenever called by its President, on its own initiative or at the request of at least two-thirds of its members. However, after the edition of Federal Decree 9,806/2019 (Brasil, 2019c), which changed its composition and mode of operation, amending Federal Decree 99,274/1990 (Brasil, 1990), the council met only twice: on September 17 and November 10, 2019. In a query made on the Ministry of the Environment website on 08/23/2021, we found that the minutes and resolutions of CONAMA are no longer available.

In addition to drastically reducing the number of titular councilors from 108 (IPEA, 2011) to 23 (Decree 9,806/2019) (Brasil, 2019), the representations of the sectors have been significantly altered (Figure 3).

CONAMA Composition

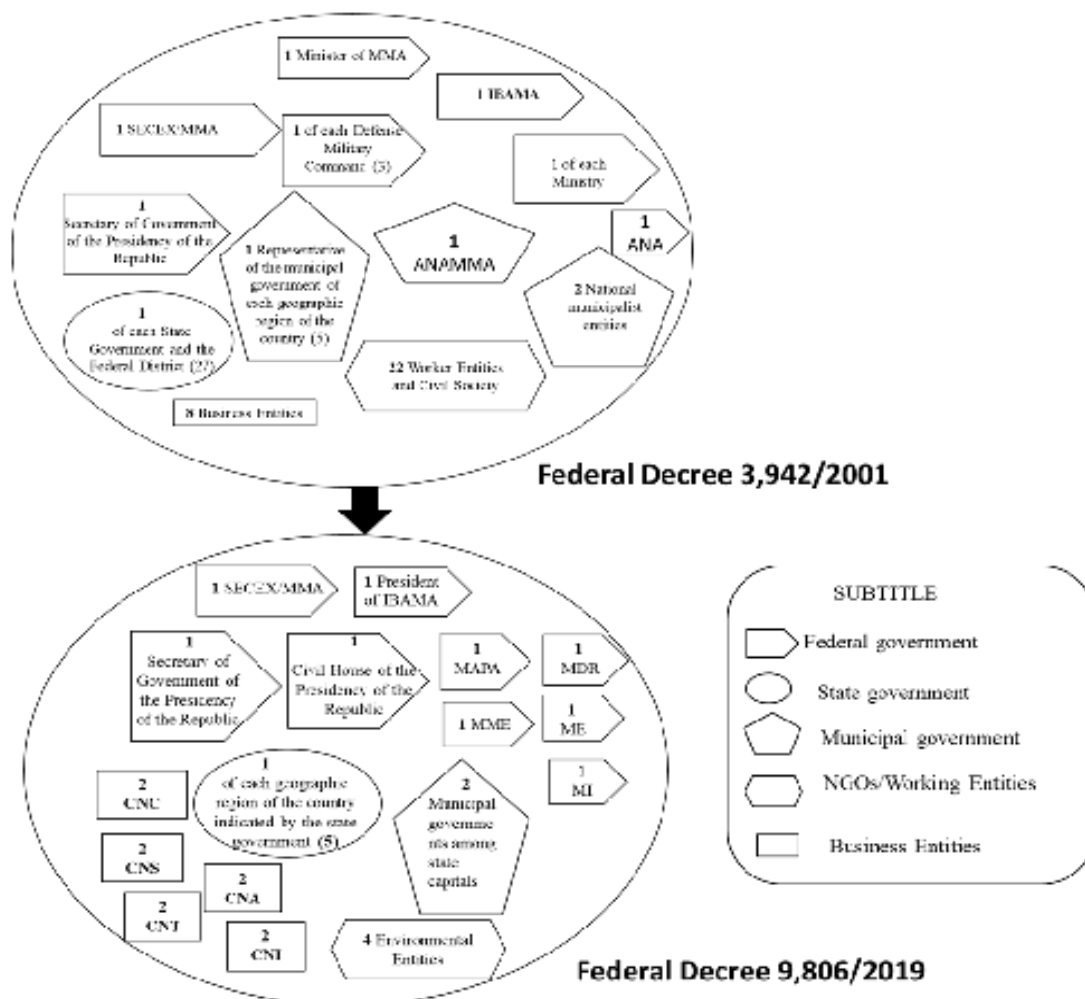


FIGURE 3 – Change in the number and composition of CONAMA.

LEGEND: Executive Secretariat of the Ministry of the Environment (SECEX/MMA), National Agency for Water and Basic Sanitation (ANA), Brazilian Institute of the Environment and Renewable Natural Resources (IBAMA), National Association of Municipalities and the Environment (ANAMMA), Ministry of Mines and Energy (MME), Ministry of Agriculture, Livestock and Supply (MAPA), Ministry of Regional Development (MDR), Ministry of National Integration (MI), Ministry of Economy (ME), National Confederation of Commerce (CNC), National Confederation of Services (CNS), National Confederation of Agriculture (CNA), National Confederation of Industry (CNI), and National Confederation of Transport (CNT).

SOURCE: Authors' elaboration based on Federal Decree 3,942/2001 (Brasil, 2001) and Federal Decree 9,806/2019 (Brasil, 2019).

The representation of the states was reduced to five seats, referring to one state of each geographic region, and only two members represented the municipalities. As for the federal government representation, the ministries of Environment (MMA), Economy (ME), Infrastructure (MI), Agriculture (MAPA), Mines and Energy (MME), Regional Development (MDR), the Civil House, and the Government Secretariat of the Presidency of the Republic were kept. Its president represents IBAMA, and ICMBio's representation was eliminated. The exclusion of the ICMBio emphasizes that the federal government is more interested in the licensing of projects than in the conservation of biodiversity and of the natural resources that are indispensable for an adequate quality of life for the Brazilian population.

Civil society, which already had problems of inequality regarding its representation (IPEA, 2011), had its 22 seats reduced to only 4. In addition, the new members were chosen by lottery, with a mandate of only one year. The decree prohibited the reelection of a civil society representative and excluded the regional representations and the Special Appeals Chamber, which was the CONAMA instance responsible for the final judgment of fines and other administrative penalties imposed by IBAMA.

Following the edition of Federal Decree 9,806/2019 (Brasil, 2019c), the Advocacy General's Office filed with the Federal Court of Justice (STF) the Argument of Noncompliance with Fundamental Precept (ADPF 623), highlighting in its argumentation: (i) reduction in the number of seats in the plenary and in the representation of civil society; (ii) disproportionate expansion of the representatives of the Executive Branch; (iii) closure of the Council

to the scientific community, indigenous people and rural and urban workers; (iv) elimination of the democratic nature of the choice and appointment of civil society representatives; (v) exclusion of the representativeness of environmental entities in the Technical Chambers and the non-voting advisors chosen among members of the Federal Public Prosecutor, State Public Ministries and; (vi) Commission of Environment and Sustainable Development of the House of Representatives (Jusbrasil, 2021).

The judicialization of the issue shows that the current federal public administration does not observe, or even deliberately seeks to suppress, the constitutional principle of social participation. It is important to emphasize that compliance with this principle cannot be left to the discretion of the head of the Executive Branch since Article 193 of the Federal Constitution provides that the State shall exercise the function of planning social policies, ensuring, in the form of law, the participation of society in the processes of formulation, monitoring, control, and evaluation of these policies.

In a situation characterized by the inexpressive representation of civil society, CONAMA, instead of improving Resolution 303/2002 to adjust it to the terms of the new Native Vegetation Protection Law of 2012, revoked it through Resolution 500/2020. However, representatives of the State of Piauí and the two NGOs present at the meeting - the Chico Mendes International Institute for Research and Socio-Environmental Responsibility and the Associação Novo Encanto de Desenvolvimento Ecológico (O Eco, 2020) - were against the revocation.

The repeal promoted by CONAMA prompted the filing of a Popular Action filed by three political parties with the STF¹ to declare CONAMA Resolution 500/2020 unconstitutional. In October

¹ Workers' Party, Rede Sustentabilidade, and Brazilian Socialist Party.

2020, CONAMA Resolution 500 was suspended by an injunction decision, thus making CONAMA Resolution 303/2002 in effect until the Court's plenary session judges the action. A political party in opposition to the government, the "Rede Sustentabilidade", claimed that the resolution was drafted "to be made blindly to organized civil society, without the necessary transparency for public acts, especially those with great potential for damaging the minimum constitutionally protected fundamental rights" (Veja, 2020).

4. Discussion

4.1. Violation of the principle of social participation

It is necessary to evaluate the relevance of the unconstitutionality thesis of Federal Decree 9,806/2019 for violating fundamental precepts. With the issuance of this decree, the CONAMA plenary loses the representation of various sectors of society, thus compromising the ability and legitimacy to properly exercise its normative power, which may violate the democratic principle of social participation.

Article 225, caput of the 1988 Federal Constitution states that it is the duty of the public authorities and of the community to protect the environment; that is, it is a duty that is incumbent on everyone, including civil society organizations, unions, Brazilian and foreign citizens residing in the country, and the public authorities. The environment is both an asset and a duty for all (Brasil, 1988).

The Federal Constitution of 1988, by establishing the principle of popular participation, makes it available as the foundation of environmental protection, advancing the materialization of the Democratic State of Law. Saule Junior (1998) understands that popular participation provides for a new relationship between citizens and the State, leading to the emergence of active and conscious citizenship, essential for the defense of the environment and of diffuse and collective interests. The partnership between the State and individuals (individuals and collectivity) for joint decision-making configures the longed-for Participatory Democratic State.

The democratic principle implies participation, with structuring processes that allow citizens to exercise democracy, participate in decision-making processes, exercise critical control in the divergence of opinions and produce democratic political inputs (Canotilho, 1999).

As Fensterseifer & Sarlet (2014) point out, insofar as the sole paragraph of article 1 of the Federal Constitution states that power emanates from the people and can be exercised directly, "it adds the dimension of participatory democracy, opening space for the direct intervention of Brazilian citizens in political decisions.

Recently, with Constitutional Amendment 108 of August 26, 2020, we had a reaffirmation of the principle of social participation, with the addition of a single paragraph to article 193, stating that the State will exercise the function of planning social policies, assured, in the form of law, the participation of society in the processes of formulation, monitoring, control, and evaluation of these policies (Brasil, 2020b).

It is worth noting that the principle of popular participation was expressly included in Federal Law 6,938/81 (Brasil, 1981), a norm that anticipates the 1988 Constitution itself, especially when the composition of CONAMA is analyzed, of which the government, organized civil society, class organizations, and non-governmental organizations are members.

There are examples worldwide where democratic decentralization in environmental matters can be obstructed by strategies that cause central governments to retain control over decisions (Ribot et al., 2006). The recent initiatives of the federal government denote a clear rejection of the principle of popular participation, showing a centralizing and authoritarian bias, objectively contradicting existing constitutional mandates.

The revocation of the CONAMA resolutions only reinforces the feeling of impunity, since the actions of the State favor the violators who occupy the PPAs (Santos, 2001; Santos & Medeiros, 2003). The alteration of the composition of CONAMA

materializes the illegal compromise of the principle of popular participation and demonstrates the option for a State that is complacent with the transgressors.

The creation of spaces for social participation is a phenomenon driven by the multiple experiences of social and collective organization in Brazil, which took place with the process of re-democratization of the country in the 1980s (Faria & Ribeiro, 2011; Souza, 2011). The guarantee to the creation of social participation spaces in Brazil was reinforced by the Brazilian Constitution of 1988, based on the belief that they would drive the democratization of social relations, political processes and greater effectiveness in the management of public policies (Faria & Ribeiro, 2011). Brazilian legal frameworks address social participation as a structuring axis of life in a democracy, political decisions, and management mechanisms that must be supported by social participation.

In the current national political scenario, several Federal government initiatives (2018 - 2020) restrict civil liberties and participation spaces (Table 2).

TABLE 2 - Examples of legislation restricting participation, conservation, and civil liberties implemented by the federal government (2018 - 2020).

Legislation	Restriction
MP 870/2019	Control of the NGOs
Federal Decree 9,759/2019	Extinction of several councils, such as Amazon Fund, Climate Fund, National Contingency Plan for Oil Pollution Incidents in Water.
Federal Decree 9,806/2019	Reduces civil society representation in CONAMA
Federal Decree 10,143/2019	Reduced civil society participation in the Management Committee of the National Fund on Climate Change
Federal Decree 10,062/2019	Reduced civil society participation in the Advisory Board of the National Forest Development Fund
Federal Decree 10,224/2020	Exclusion of social participation in the Deliberative Council of the National Environmental Fund
Rectification of Normative Instruction 21/2018	Reduced the composition of the Technical Advisory Groups for the National Action Plans for the Conservation of Species.

SOURCE: The authors.

Participation in public policies is widely disseminated nationally and internationally, constituting an item of great relevance in establishing and implementing public policies in new institutional arrangements involving state and civil society (IPEA, 2011). The Institute for Applied Economic Research (IPEA) conducted a study in 2011 to analyze the decision-making dynamics and the political-participatory process of CONAMA and found that, since its creation, the council has gone through five different configurations in its composition. The issue has generated polarization and confrontations between governmental and non-governmental sectors. The imbalance in the composition of the segments has been maintained, with non-governmental organizations and the business sector having a minority representation about the government sector. When asked which resolutions have had the most negative impact on Brazilian environmental policy/management, the councilors highlighted Resolutions 303/2002, 302/2002, and 369/2005. They were also recognized as the most positive by another group. This duplicity can be related to the importance attributed by the councilors regarding the strong influence - positive or negative - of these resolutions on Brazilian environmental management.

However, CONAMA has never suffered a change as drastic as the one promoted by Federal Decree 9,806/2019. Despite the problems of parity, where there was an overrepresentation of the Federal Government and underrepresentation of the business sector, workers' entities, and civil society advisors (ABES, 2020), the absence of recognized technical-scientific entities, union representatives, and representatives of indigenous communities, in addition to preventing social control, make it impossible to regulate in a way that meets important

socio-environmental demands. CONAMA, as the deliberative body of SISNAMA, should excel in the plurality of social representation. The changes promoted not only increase this asymmetry in representation but also increase the risks to the most vulnerable social sectors, by consecrating a true hegemony of government representation associated with the economic sector.

Participation refers to a process in which social actors are involved in decision-making that affects them, either passively, via consultation, or actively through bidirectional engagement (Reed, 2008). CONAMA today is a body composed exclusively of Ministries, confederations, a representative of the Federal Public Prosecutor, and a representative of society. Its reestablishment needs to guarantee equal participation to enable the social control established in the Federal Constitution. In other words, CONAMA is today focused on meeting the demands of the current government (2018 - 2021) and not on State policies.

Changes in the composition of CONAMA and the revocation of resolutions represent legislative setbacks that contradict one of the fundamental principles of Environmental Law, characterized as "prohibition of retrogression" (Prieur, 2016). This principle aims to safeguard the progress achieved to environmental issues and thus avoid the compulsory deterioration of the environment over the years and the issuance of new laws. It is worth remembering that Brazil has committed to international conventions and these setbacks move the country further away from the Aichi Targets of the Convention on Biological Diversity (CBD), which seeks to establish concrete actions to halt the loss of planetary biodiversity (Federal Decree 2,519/1998) (Brasil, 1998). Going back on this quest means putting the

individual right to property, or to carry out economic activities, above the collective right of present and future generations to an ecologically balanced environment.

4.2. Implications for changing the protection of the restinga vegetation

In general, it is possible to understand that the Atlantic Forest Law brings equivalent protection to that conferred by CONAMA Resolution 303/2002 (CONAMA, 2002b) for land covered by restinga vegetation in the herbaceous and subshrub layer. In a certain way, this protection is even superior to that conferred by the PPA regime; nevertheless, this protection is relativized by a series of factors:

a. The Map of the Application Area of Federal Law 11,428 of 2006 (Federal Decree 6,660/2008) (Brasil, 2008) shows that part of the Brazilian coast is not covered by this rule (Amazon Equatorial coast), leaving it under the general regime established by Federal Law 12,651/2012 and CONAMA Resolution 303/2002;

b. The Atlantic Forest Law does not apply to anthropized areas, where remnants of native vegetation are no longer characterized; thus, in these areas, protection is restricted to what the general rule on the PPA regime determines, since this is a protected area, covered or not by native vegetation;

c. The Amazon Equatorial Coast is not covered by the Map of the Application Area of Federal Law 11,428 of 2006 (Brasil, 2008), edited by IBGE. The part of the south coast is associated with areas of pioneer formations (restingas and alluvial areas) of the Pampa biome, considered as vegetation disjunctions over which the Atlantic Forest Law applies, as

explained in the "Explanatory Note" accompanying the aforementioned Map of the Application Area of Federal Law 11,428 of 2006;

d. For shrubby and arboreal restinga formations, the Atlantic Forest Law does not confer protection similar to the PPA regime, and, in this case, the revocation of Resolution 303/2002 (CONAMA, 2002b), eliminating the 300m PPA strip, would weaken this protection, since in Federal Law 12,651/2012 only areas with dune-fixing or mangrove stabilizing vegetation were contemplated (Brasil, 2012). The preservation of the 300 m is justified because this zone is the first bulkhead for the stability of the coast, besides protecting different ecological niches. Protecting the features associated with the restinga vegetation is strategic for biodiversity, with relevant importance for migratory fauna. It also contributes to the regularity of the water table, since the disorderly occupation, soil sealing, and groundwater abstraction increase the risk of saltwater intrusion, compromising the use of this natural resource.

e. The protection of dunes would also not be supported by the Atlantic Forest Law, and in the particular case of mobile dunes (devoid of vegetation) not even by Federal Law 12,651/2012 (Brasil, 2012).

f. The correct identification of primary and secondary vegetation, particularly in cases of herbaceous and subshrub vegetation, is not so simple, and it is not uncommon, either through technical malpractice or deliberately, for areas of restinga with primary herbaceous or subshrub vegetation to be identified as a secondary shrub or tree restinga vegetation in an initial stage of regeneration, a situation in which the rules of the Atlantic Forest Law are the most permissive.

4.3. Principles of GBE applied to protection of restinga vegetation

Following, the key principles for GBE analyzed by Long *et al.* (2015) are contrasted with the changes that have occurred in the legal regime to protect restinga vegetation. Some principles were adjusted and unified in the analysis.

1) Consider ecosystem connections: the CONAMA Resolution 303/2002 provided for a strip of 300 meters, measured from the maximum high tide line, as PPA. This measure is associated with the dynamic character of the coastal ecosystems and the connections between the environments. The loss of this protection strip exposes coastal populations to the risk of disasters caused by extreme weather events.

2) Adequate Spatial Scale: the repealed CONAMA Resolutions stipulated clear spatial milestones of protection (e.g., 300 m maximum high tide line). This reference has application throughout the national scale, with specificities for São Paulo (CONAMA, 1996) and Santa Catarina (CONAMA, 1999).

3) Adaptive Management, Recognizing Coupled Socio-ecological Systems and Appropriate Monitoring: diverse traditional populations and native peoples who maintain interdependent relationships with biodiversity reside in the coastal zone. The low-impact forms of extractivism practiced by these groups do not contradict the legal documents of protecting the restinga vegetation and are part of the Brazilian cultural heritage. Instead of social learning generated by monitoring biophysical and social variables, the changes in CONAMA have promoted the exclusion of social

groups with the necessary knowledge for adaptive management, such as traditional populations. The advance of geotechnologies has made it possible to evaluate the changes in vegetation cover throughout the Brazilian biomes in real-time and through open platforms. Local communities and decision-makers have not appropriated this information. The non-observance of the indicators of reduction in the cover of restinga vegetation by the new CONAMA reflects this situation.

4) Use of Scientific Knowledge and Inter-disciplinarity: the CONAMA Resolutions related to the protection of the restinga vegetation were elaborated with extensive participation of academia, and there was no scientific backing for the proposed changes. Moreover, the regulations historically promoted by CONAMA relied on specialists from different areas. The very concept of sandbank is the subject of debate, especially among geologists, geographers, botanists and ecologists.

5) Involvement of Stakeholders: besides the low representation of civil society, which was already unsatisfactory, the new configuration of CONAMA allows only one re-election of these councilors, and also excludes regional representations. With the significant reduction in the representation of organized civil society and higher education and research institutions, CONAMA is currently formed by a majority that disregards the enforcement of the National Environmental Policy (Federal Law 6,931/1981) and that may compromise the ecosystem services responsible for the economy and well-being of the population.

6) Integrated Management and Decisions Reflect Society's Choices: Coastal Zone management was instituted by the National Coastal Management Plan (PNGC - Federal Law 7,661/88,

regulated by Federal Decree 5,300/2004). Despite its intention to promote decentralization, public participation and integrated coastal management, this instrument has been used sectorally (Stori *et al.*, 2017). The lack of reference to the PNGC, which should structure the interventions in the coastal zone, in reducing legal protection to restinga vegetation, demonstrates the feasibility of this hypothesis. Moreover, the exclusion of ICMBio, the managing body of the Federal Marine Protected Areas, from CONAMA, highlights that the government is more interested in the licensing of enterprises than in the conservation of biodiversity and natural resources that are essential for an adequate quality of life of the Brazilian population.

7) Sustainability: Because it is located on the coast, where a large part of the Brazilian population lives, restinga vegetation is among the most threatened environments of the Atlantic Forest (Stehmann *et al.*, 2009). The diversity of habitats makes the Brazilian restingas one of the most complex ecosystems in existence. This characteristic, which on the one hand gives them special interest and value, is partly responsible for their fragility and extreme susceptibility to human disturbances (Araújo & Lacerda, 1987).

8) Explaining the Dynamic Nature of Ecosystems and Ecological Integrity and Biodiversity: the high dynamics of coastal environments make them particularly susceptible to the processes of sedimentation, abrasion and marine erosion, so that the existing vegetation on these lands fulfills a strategic function in safeguarding their stability or, at least, as an attenuating element of the erosive effects of tidal advance, which restricts the occupation of these areas (Santos *et al.*, 1995; Muehe & Klumb-Oliveira, 2014). Besides the evident risks,

the occupation of the land with restinga vegetation tends to make it less permeable, hindering or even preventing the recharge of the underground aquifer, and making the risk of contamination of its waters greater, since the aquifers are at small depths (Moura *et al.*, 2016). The depth of the water table is a relevant factor in terms of water input, because coastal dune environments, even close to the ocean, tend to behave as arid systems, since the permeability of the sandy substrate favors water drainage and nutrient leaching (Seeliger, 1992). The integrity of these environments is essential to guarantee the stability and quality of the water resources in a place where the highest population growth rates in the country are present. The sandbank vegetation suffers strong real estate pressure and provides a number of ecosystem services, among them the protection of the coastal area against the action of waves and storms and sea level rise, natural reservoir of water and biotic resources, in addition to scientific interest and traditional use (Miranda & Hanazaki, 2008), maintenance of biodiversity and fisheries resources, retention of pollutants, sequestration of atmospheric CO₂ and mitigation of climate change effects (Nicolodi & Petermann, 2010). Thus, the presence of this vegetation is extremely important for protecting coastal cities from extreme weather events (IPCC, 2007; 2012; Egler & Gusmão, 2014).

9) Distinct Limits: despite the interdependence between coastal environments, the CONAMA Resolutions recognized the specificities of each vegetational typology, assigning different classes to the restinga vegetation (herbaceous, shrubs and trees).

10) Recognizing Uncertainties: Reducing the legal protection of restinga vegetation can have unpredictable effects. The maintenance of dune field-

ds and a strip of restinga adjacent to the shoreline is coated with strategic importance, because besides the attributes of protection to erosive processes, aquifer recharge, scenic value and repository of great biodiversity (Araújo & Lacerda, 1987; Veiga Lima, *et al.*, 2016), this coastal strip constitutes an indispensable space for the necessary adaptation to the adverse effects of more intense climate events that we have to manage in an increasingly frequent manner (Nicolodi & Pertermann, 2010).

5. Conclusion

The National Environmental Council (CONAMA) is a consulting and deliberating organ of the National Environmental System - SISNAMA, and its function is to advise, study, and propose to the Government the direction lines that government policies should take for the exploration and preservation of the environment and natural resources. Furthermore, within its competence, it is up to the agency to create norms and determine standards compatible with an ecologically balanced environment that is essential to a healthy quality of life.

After the edition of Federal Decree 9,806, of May 28, 2019, amending Federal Decree 99,274/90, to provide for the new composition and operation of CONAMA, the federal government not only promotes a numerical reduction in the composition, but also excludes various segments of civil society, and hurts the autonomy of the entities representing these sectors, for example, by sequentially instituting the choice of representatives according to a list established by lottery.

In the current national political scenario, the edition of Federal Decree 9,806/2019 emerges as

an initiative of the Federal Government aiming to restrict civil liberties and participation spaces. Creating spaces for social participation is a phenomenon that the multiple experiences of social and collective organization in Brazil. Such experiences, if not explicitly supported by the federal government, at least until then there was no deliberate action to destructure them, as we are seeing now.

The guarantee to create spaces for social participation in Brazil was reinforced by the Brazilian Constitution of 1988, based on the belief that they would drive the democratization of social relations, of political processes, generating greater effectiveness in the management of public policies. The Brazilian legal frameworks approach social participation as a structuring axis of life in a democracy, in political decisions, and management mechanisms must be supported by social participation. By breaking with this logic, the State assumes a posture that, besides being authoritarian and arbitrary, is objectively unconstitutional, constituting a real setback in a process that, within a Democratic State of Law, cannot be admitted.

The first deliberations of CONAMA with this structure showed the real objective of the federal government: to have a council whose composition guarantees decisions that are always favorable to them. The revocation of Resolution 303/2002, opening the way to advance on the last remnants of vulnerable ecosystems that are fundamental to maintaining life in the Brazilian coastal zone, exemplifies this trend. The reinstatement of Resolution 303/2002 by force of judicial decision indicates the illegality of CONAMA's actions with this new composition. It is worth remembering that compliance with the principle of legality is not an option for the State, it is an obligation of the entire public admini-

nistration of any of the branches of government of the Union, the States, the Federal District and the Municipalities.

Besides the aspects of legality, it is possible to infer that the revocation of Resolution 303/2002 brings significant risks, if considered in light of the principles of Ecosystem-Based Management. The maintenance of fragile sandbank environments is extremely important for the conservation of biodiversity, water resources, and ecological and geological processes. Due to their intense dynamics, unstable environments are subject to risks, which are aggravated by the intensification of extreme climate events. Even with the protection conferred by the Atlantic Forest Law and the Native Vegetation Protection Law, the elimination of the PPA regime in the 300-meter strip and the protection of mobile dunes tends to aggravate a picture of disorderly and irregular occupation of the Brazilian coast, that has been causing considerable damage to the natural environment and to traditional populations.

The Constitution imposes on the government the duty to defend and preserve the ecologically balanced environment, and to preserve and restore essential ecological processes. However, by revoking Resolution 303/2002, the federal government is withdrawing the validity of the instrument that minimally guaranteed the preservation of these processes in the sandbanks, subverting the constitutional mandate and compromising a diffuse right that is essential to the people's healthy quality of life, which is already being strongly threatened by the course of global climate change.

The evaluation of the data presented here indicates that Brazilian society shows encouraging signs of democratic maturity, rising up against harmful acts through the articulated action of civil

society organizations with the other branches of government. These initiatives by the Executive Branch are clearly characterized as threats both to the natural environment and to democracy itself. Still, they have the potential, at the same time, to induce a process of greater mobilization of society, provoking independent action by the different Branches in the search for the improvement and consolidation of Brazilian democracy.

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